



# CODESYS ENGINEERING

## Application Products

CODESYS Feature Briefing, March 2024  
Ulf Schünemann, Product Owner



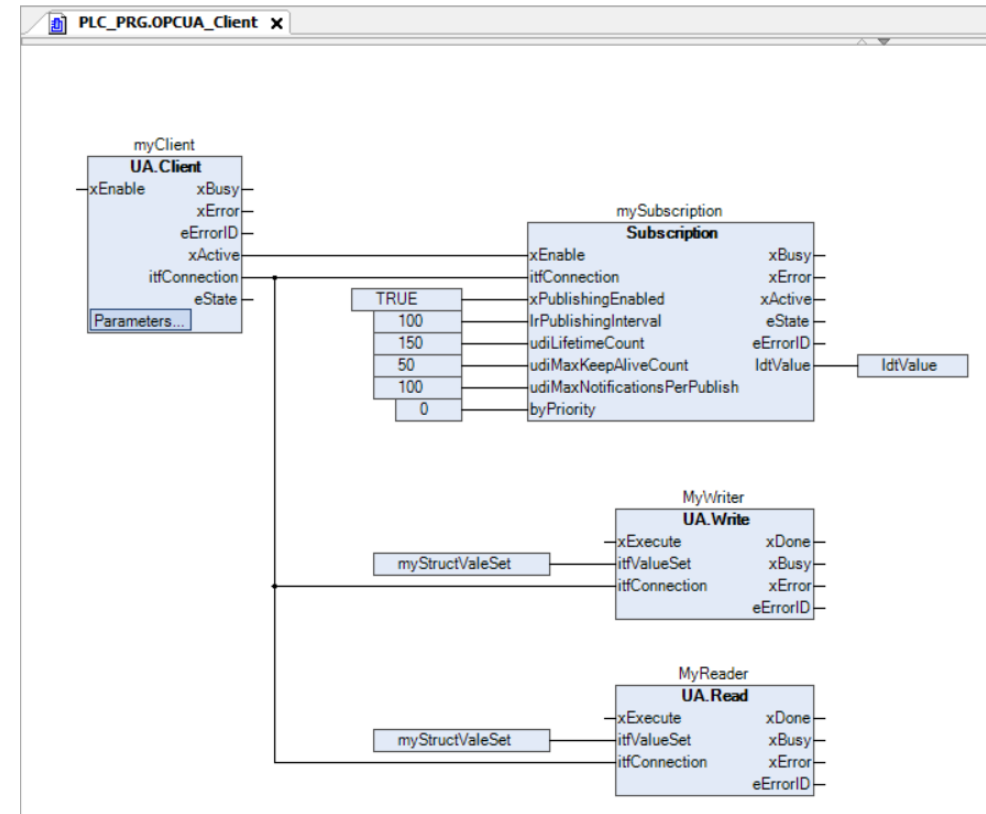
**1****OPC UA Client API (Released)****2****CODESYS Simulation Interface (Update)****3****Application Composer (Outlook)****4****Library Landscape**

## CODESYS OPC UA Client API

- Released March 2024
- Free add-on
- For PLCs with CODESYS OPC UA Client feature
  - Encapsulates runtime component library *CmpOPCUAClient*
- High-level API for access to UA Servers
  - Based on Common Behaviour Model

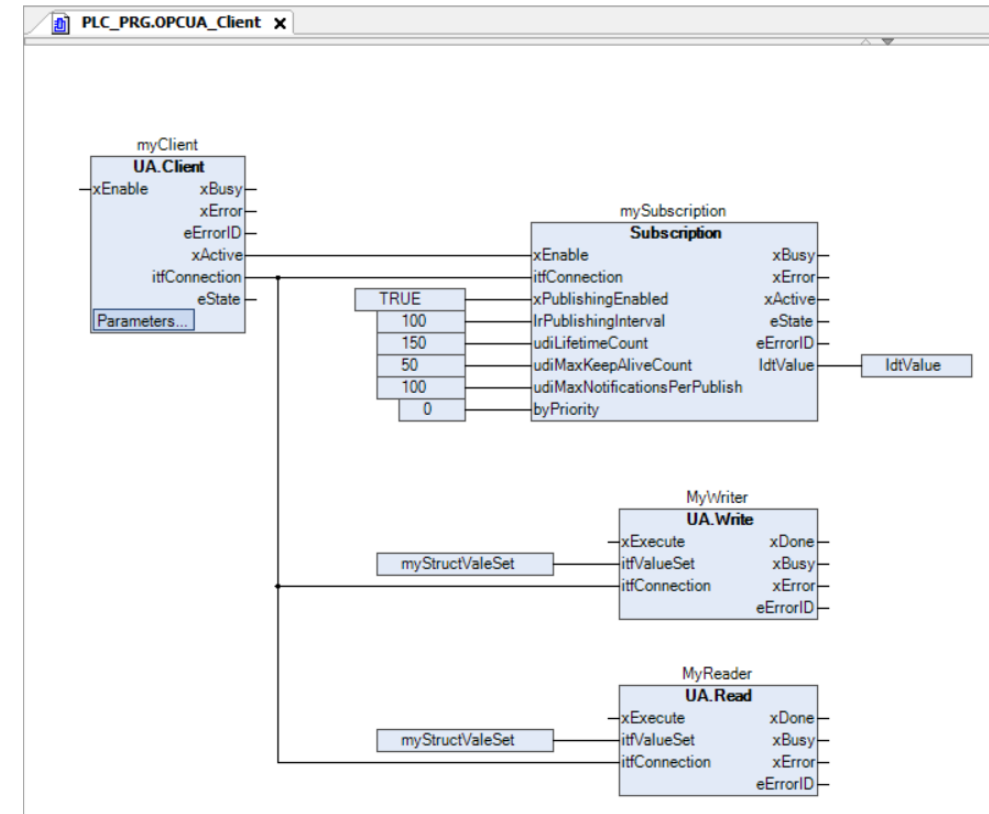
### Features

- Connection management
- Access to variable nodes
  - Basic type / structure / array
  - Subscription / read / write



## Detail: main function blocks

- **Client FB**
  - Manages connection to OPC UA Server  
(URL, client name, authentication, security policy timeout, async property)
- **Subscription FB**
  - Derive it to define own set of Server value subscriptions with mappings to IEC variables
- **ValueSet FB**
  - Derive it to define own set of Server value nodes with mappings to IEC variables
- **Read / Write FBs**
  - Triggered exchange of a value set



## Detail: definitions behind the scenes, e.g. structured value

```

FUNCTION_BLOCK MyStructValueSet EXTENDS UA.ValueSet
VAR_INPUT
    sval : MyIECStruct;
END_VAR
VAR
    _svalDescr : ARRAY[0..2] OF UA.StructValue := [
        (eType := UA.IEC_STRING, pValue := ADR(sval.sString), udiSize:=SIZEOF(sval.sString)),
        (eType := UA.IEC_REAL, pValue := ADR(sval.rReal)),
        (eType := UA.IEC_DATEANDTIME, pValue := ADR(sval.dtDateTime))
    ];

    _aValues : ARRAY[0..0] OF UA.Value := [
        (
            eType := UA.IEC_STRUCT, pValue := ADR(_svalDescr), udiSize := SIZEOF(_svalDescr),

            psNodeId := ADR('ns=4;s=|var|otherPLC.App.POU.structval'),
            psEncodingId := ADR('ns=4;s=|enc|otherPLC.App.MyIECStruct')
        )
    ];
END_VAR

```

```

TYPE MyIECStruct :
STRUCT
    sString : STRING(25);
    rReal : REAL;
    dtDateTime : DATE_AND_TIME;
END_STRUCT
END_TYPE

```

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## CODESYS Simulation Interface

- **Initial release planned for September 2024**
- **Add-on with workplace license**
- **For running CODESYS applications against machine simulation (SiL)**
- **Automatically, no manual code adaptation**
  
- **Already: redirect I/O signals from fieldbus to simulation (OPC UA Pub/Sub)**
- **Investigating: get information model for I/O signals into OPC UA Server**
  - For easy import into simulation model
  - CODESYS OPC UA Server seems to be missing something
- **SPS fair 2024: demonstrate integration in 3+ simulation tools**
  - Still looking for pilot CODESYS user using Matlab/Simulink machine models

1

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4

**Library Landscape**



## CODESYS Application Composer

- **Version 4.4, November 2024**
- **Licencing improvements**
  - Licence subscription via Store
  - Licence for dongle *and* soft container (Universal Firm Code)
  - Licencing in adapted IDEs with alternative licence technology
  - No more *CODESYS Application Composer Single License* package
- **Performance improvements**
- **Prepare for composer modules without full Application Composer**
  - 2025: *Persistence Manager* as stand-alone add-on

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## 1. Discontinuation

### ***SMS Service* library – part of CODESYS IIoT Libraries**

- **Service phase**
  - End of support
  - Only security patches and regression fixes
  - No further development, no functional bug fixes
  - Not recommended for new projects
  - Marked “deprecated” in next *IIoT Libraries* versions
  - Old projects can be used unchanged with new CODESYS versions
  
- **Discontinuation 2026/3**
  - Removal from IIoT libraries and help server
  - No more regression tests, no more security patches

## 2. Discontinuation

### 6 CAA libraries with modern successors

- Coming: Guidelines for transition
- CODESYS libraries will switch
- **Service phase 2026/03**
  - Marked “deprecated”
- **Discontinuation 2030/03**
  - Removal from setup
- ⇒ **Switch your libraries and projects in time** ⇐

| CAA  | successor                |
|--|--------------------------|
| <i>CAA Net Base Services</i>               | Net Base Services        |
| <i>CAA List And Tree</i>                   | Element Collections      |
| <i>CAA Async Manager Extern</i>            | Async Job Manager        |
| <i>CAA Segmented Buffer Manager Extern</i> | Segmented Buffer Manager |
| <i>CAA Memory Block Manager Extern</i>     | Memory Block Manager     |
| <i>CAA Behaviour Model</i>                 | Common Behaviour Model   |

Corresponding runtime components (*CmpCAAxxx*) will stay for longer – no timeline yet

### 3. Part 2 of CODESYS modularization

- Also libraries factored-out into add-ons within the setup
  - Advantage: independent release cycle
  - No urgency, no timeline
- 
1. ***New String Libraries*** – first library add-on in setup (SP20)
  2. **CAA successors** – move from Essentials into add-ons
  3. ***Control Loop Library*** – move from Store to setup
  4. **Further CAA successors** – to be developed as add-ons in setup  
(CAA File, DTUtil, SerialCom, Storage)



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